

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1-2. (Canceled)

3. (Currently Amended) ~~[[The]]~~ A storage apparatus according to claim 2,
used in a distributed storage system, comprising:

a file memory to store data corresponding to identifiers of an allocated area in an
identifier space;

a first memory to store a basis position of the allocated area in the identifier
space;

a second memory to store a weight of the storage apparatus as a performance
degree, the weight being calculated by at least one of storage capacity, calculation
ability, and circuit speed of the storage apparatus;

a first decision unit configured to calculate a sum of the weight of the storage
apparatus and a weight of another storage apparatus, to divide the weight of the
storage apparatus by the sum, and to set the division result as a space width to
divisionally allocate the identifier space with the another storage apparatus, the another
storage apparatus allocating a neighboring area of the allocated area in the identifier
space; and

~~wherein said~~ a second decision unit configured to multiplies multiply a value of
the basis position of the storage apparatus with a subtraction value of the space width

from one as a first multiplication value, ~~multiplies~~ to multiply a value of the basis position of ~~the~~ another storage apparatus with the space width as a second multiplication value, ~~calculates~~ to calculate a sum of the first multiplication value and the second multiplication value, and ~~[[sets]]~~ to set an area between a position of the sum and the basis position of the storage apparatus in the identifier space as the allocated area.

4. (Canceled)

5. (Currently Amended) ~~[[The]]~~ A storage apparatus ~~according to claim 4,~~
used in a distributed storage system, comprising:

a file memory to store data corresponding to identifiers of an allocated area in an identifier space;

a first memory to store a basis position of the allocated area in the identifier space;

a second memory to store a weight of the storage apparatus as a performance degree, the weight being calculated by at least one of storage capacity, calculation ability, and circuit speed of the storage apparatus;

a first decision unit configured to decide a space width to divisionally allocate the identifier space with another storage apparatus by using the weight and a weight of the another storage apparatus, the another storage apparatus allocating a neighboring area of the allocated area in the identifier space; and

a second decision unit configured to decide the allocated area of an area between the basis position and a basis position of the neighboring area in the identifier space by using the space width,

wherein the basis position of the another storage apparatus is nearest to the basis position of the storage apparatus in other storage apparatuses each of which has a different basis position in the identifier space,

wherein the another storage apparatus is regarded as a neighboring storage apparatus, and

wherein, if a basis position of a first neighboring storage apparatus exists on one side of the basis position of the storage apparatus and a basis position of a second neighboring storage apparatus exists on the other side of the basis position of the storage apparatus in the identifier space,

said second decision unit decides a first allocated area for the first neighboring storage apparatus and a second allocated area for the second neighboring storage apparatus, and sets a merger area of the first allocated area and the second allocated area as the allocated area.

6. (Currently Amended) ~~[[The]]~~ A storage apparatus according to claim 4,
used in a distributed storage system, comprising:
a file memory to store data corresponding to identifiers of an allocated area in an identifier space;
a first memory to store a basis position of the allocated area in the identifier space;

a second memory to store a weight of the storage apparatus as a performance degree, the weight being calculated by at least one of storage capacity, calculation ability, and circuit speed of the storage apparatus;

a first decision unit configured to decide a space width to divisionally allocate the identifier space with another storage apparatus by using the weight and a weight of the another storage apparatus, the another storage apparatus allocating a neighboring area of the allocated area in the identifier space; and

a second decision unit configured to decide the allocated area of an area between the basis position and a basis position of the neighboring area in the identifier space by using the space width,

wherein the basis position of the another storage apparatus is nearest to the basis position of the storage apparatus in other storage apparatuses each of which has a different basis position in the identifier space,

wherein the another storage apparatus is regarded as a neighboring storage apparatus, and

wherein, if a basis position of the neighboring storage apparatus exists on one side of the basis position of the storage apparatus and all basis positions of other storage apparatuses do not exist on the other side of the basis position of the storage apparatus in the identifier space,

said second decision unit decides a first allocated area for the neighboring storage apparatus, decides a second allocated area between the basis position of the storage apparatus and an edge position of the other side in the identifier space, and

sets a merger area of the first allocated area and the second allocated area as the allocated area.

7. (Currently Amended) ~~[[The]]~~ A storage apparatus according to claim 4 used in a distributed storage system, further comprising:

a file memory to store data corresponding to identifiers of an allocated area in an identifier space;

a first memory to store a basis position of the allocated area in the identifier space;

a second memory to store a weight of the storage apparatus as a performance degree, the weight being calculated by at least one of storage capacity, calculation ability, and circuit speed of the storage apparatus;

a first decision unit configured to decide a space width to divisionally allocate the identifier space with another storage apparatus by using the weight and a weight of the another storage apparatus, the another storage apparatus allocating a neighboring area of the allocated area in the identifier space;

a second decision unit configured to decide the allocated area of an area between the basis position and a basis position of the neighboring area in the identifier space by using the space width; and

a third memory to store an address of the storage apparatus,

wherein the basis position of the storage apparatus is calculated by applying a hash function to the address[[]].

wherein the basis position of the another storage apparatus is nearest to the basis position of the storage apparatus in other storage apparatuses each of which has a different basis position in the identifier space, and

wherein the another storage apparatus is regarded as a neighboring storage apparatus.

8. (Original) The storage apparatus according to claim 7, further comprising:
an acquirement unit configured to acquire an address of the neighboring storage apparatus, and

a fourth memory to store the address of the neighboring storage apparatus.

9. (Original) The storage apparatus according to claim 8,
wherein a basis position of the neighboring storage apparatus is calculated by applying the hash function to the address of the neighboring storage apparatus.

10. (Original) The storage apparatus according to claim 9,
wherein said acquirement unit calculates a first sum of the basis position of the storage apparatus and 2^{b-1} (b: predetermined integral number), calculates a second sum of the basis position of the neighboring storage apparatus and 2^{b-1} , and acquires addresses of other storage apparatuses each allocating an area of the first sum or an area of the second sum in the identifier space, and
wherein said fourth memory stores the addresses.

11-14. (canceled)

15. (Currently Amended) ~~[[The]] A~~ storage apparatus ~~according to claim 14,~~
used in a distributed storage system, comprising:

a file memory to store data corresponding to identifiers of an allocated area in an
identifier space;

a first memory to store a basis position of the allocated area in the identifier
space;

a second memory to store a weight of the storage apparatus as a performance
degree, the weight being calculated by at least one of storage capacity, calculation
ability, and circuit speed of the storage apparatus;

a first decision unit configured to decide a space width to divisionally allocate the
identifier space with another storage apparatus by using the weight and a weight of the
another storage apparatus, the another storage apparatus allocating a neighboring area
of the allocated area in the identifier space; and

a second decision unit configured to decide the allocated area of an area
between the basis position and a basis position of the neighboring area in the identifier
space by using the space width,

wherein the storage apparatus corresponds to a plurality of virtual nodes each of
which has a different basis position in the identifier space, the basis position of each
virtual node ~~[[is]]~~ being calculated by applying the hash function to a multiplication value
of the address of the storage apparatus with an identifier of each virtual node~~[[.]],~~ and

wherein said second decision unit respectively decides the allocated area of each of the plurality of virtual nodes.

16. (Currently Amended) ~~[[The]]~~ A storage apparatus according to claim 14,
used in a distributed storage system, comprising:

a file memory to store data corresponding to identifiers of an allocated area in an identifier space;

a first memory to store a basis position of the allocated area in the identifier space;

a second memory to store a weight of the storage apparatus as a performance degree, the weight being calculated by at least one of storage capacity, calculation ability, and circuit speed of the storage apparatus;

a first decision unit configured to decide a space width to divisionally allocate the identifier space with another storage apparatus by using the weight and a weight of the another storage apparatus, the another storage apparatus allocating a neighboring area of the allocated area in the identifier space; and

a second decision unit configured to decide the allocated area of an area between the basis position and a basis position of the neighboring area in the identifier space by using the space width,

wherein [[each]] the storage apparatus corresponds to a plurality of virtual node each of which has a different basis position in the identifier space and a different weight previously assigned[[.]], and

wherein said second decision unit respectively decides the allocated area of each of the plurality of virtual nodes.

17-20. (Canceled)